

## **REMARKS / ARGUMENTS**

### **A. Premature Final Action**

In the office action dated December 13, 2007, the Examiner made the action final. Applicant respectfully submits that this final action was premature. A second or subsequent action may not be made final where there is a new grounds for rejection unless it is necessitated by the Applicant's amendment or is based on prior art cited in an information disclosure statement submitted by the Applicant. [MPEP 706.07(a)]. Further, a second or subsequent action should not be made final where an amendment has been made, if the included limitations should have reasonably been expected to be claimed. [MPEP 706.07(a)].

Applicant submits that Claims 3-15, including independent Claim 10, have not been amended from the original filed claims. It should be noted that Claims 10-15 were previously designated as allowable by the Examiner. Further, the amendment of Claims 1 and 20 was the incorporation of limitations from previous Claim 2. Therefore, it is reasonable that these limitations were expected to be claimed. Therefore, Applicant has not had a fair and equitable opportunity to respond to the rejections. Accordingly, Applicant respectfully submits that with respect to at least Claims 1, 3-15 and 20, the finality of the action dated December 13, 2007 is premature. Reconsideration and withdrawal of this finality is respectfully requested.

### **B. Status of Claims**

Claims 1, 3-15, 20 and 21 are pending in the application. Claims 1, 3-15, 20 and 21 stand rejected. Applicant notes that the Examiner states on the Office Action Summary page that Claims 1, 3-16, 20 and 21 are pending. Applicant draws the Examiner's attention to Applicant's previous amendment dated September 25, 2007

where Claim 16 was cancelled. By this amendment, Claims 1 and 20 were amended, leaving Claims 1, 3-15, 20 and 21 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the rejections under 35 U.S.C. §103(a) have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

### **Rejections Under 35 U.S.C. §103(a)**

Claims 1 and 3-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Daum (U.S. Patent No. 6,704,600, hereinafter Daum).

Applicant respectfully submits that the obviousness rejection based on the References is improper as the References fail to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

Regarding Claims 1 and 3-9, Applicant respectfully submits that Claims 1 and 3-9 are not obvious in light in of Daum. In the office action the Examiner states that while Daum does not specifically disclose asynchronous pacing of the patient's heart, that it would have been obvious to use any type of pacing desired so as to achieve the necessary treatment to the patient. [paper 20071213, page 2]. Applicant respectfully disagrees.

A heart moves each time it beats resulting in significant motion. To provide clear images of the heart, prior art techniques were developed to acquire data at a defined phased of the cardiac cycle, for example the diastolic phase when the heart is fully relaxed. Typically, the R-wave is used for triggering the imaging. [present Application, Paragraph [0002]]. However, in patients with pace makers, the R-wave includes a spike

that may be higher than the R-Wave, which in turn effects the triggering of the image. [present Application, Paragraph [0003], Figure 2].

Independent Claim 1, and dependent Claims 3-9 address the problem of acquiring a clear cardiac image by the real time recording of the ECG and CT imaging while controlling the patients heart rate at fixed rate. This avoids issues created by spikes induced by a pacemaker device. Daum in contrast is addressing a different problem. Daum addresses the issue of placing leads, and the movement of such leads of a cardiac device with an ultrasound imaging device. [Daum, Col 4, Lines 11-29]. Specifically, Daum states that they are addressing the issue of installing leads in a less rigorous medical environment. [Daum, Col 1, Lines 43-45]. Applicant respectfully submits that the claimed limitation of a computed tomography system is not the less rigorous environment contemplated by Daum and was the type of system that Daum was seeking to avoid.

Further, Daum does not address the limitation of Claim 1 that includes capturing series of clear images of the heart at a particular phase of the cardiac cycle while maintaining the heart at a fixed rate. Daum is concerned with the movement of a lead, such as the echogenic lead, to determine lateral wall movement. Daum further teaches that this movement is used to calculate an optimum value for the heart response. [Daum, Col 7, Lines 38 – 62]. Daum also teaches that image data is selected using “techniques known in the art.” Applicant respectfully submits that the prior technique of using the R-wave for triggering does not resolve the issue of image quality caused by the pacemaker induced spikes.

Accordingly, Applicant respectfully submits that Daum does not address the acquisition of clear image that avoids the spike created by the pacemaker. Applicant can find no disclosure, teaching or suggestion of Daum that resolves the issue of triggering caused by this spike. Therefore, Daum fails to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. Applicant respectfully submits that a prima facie case of obvious has not been established. Reconsideration and withdrawal of this rejection is respectfully requested.

With respect to dependent Claims 3-9, which depend directly or indirectly from independent Claim 1, also incorporate all of the limitations of the parent claim. Accordingly, for at least the reasons stated above with respect to Claim 1, Applicant submits that dependent Claims 3-9 are not obvious in light of Daum. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 1 and 3-16, 20-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Richey et al. (4,547,892, hereinafter Richey) alone or in view of Daum.

Regarding Claims 1 and 3-16, 20-21, Applicant submits that Claims 1, 3-16 and 20-21 are not obvious in light of Richey, either alone or in combination with Daum. In the office action, the Examiner stated Richey discloses the use of a scanner that is gated by an ECG and that an external pacemaker paced the heart to avoid irregular heartbeats. The Examiner further stated that asynchronous pacing by an internal pacemaker device is obvious. [paper 20071213, Pages 2-3]. Applicant respectfully disagrees.

As discussed above with respect to Daum, Richey also fails to address the issue created by the spike generated in the ECG by the pacemaker. The mere pacing of the heart does not address this issue. Applicant finds that Richey discloses the gating of the imaging on the R-wave with a fixed delay. [Richey, Col 3, Lines 65-68, Col 4, Lines 1-15]. Applicant further finds that Richey discloses that unacceptable variations in the cardiac cycle, including those found where the cardiac period is stabilized, are discarded. [Richey, Col 3, Lines 20-23, Col 4, Lines 48-54]. If there are variations in the cardiac cycle, Applicant respectfully submits that the system of Richey does not maintain the patient at a fixed asynchronous rate.

Applicant respectfully submits that a system that discards images due to unacceptable variations is different from a system that paces a patient's heart at an asynchronous pacing mode. Accordingly, Applicant submits that Richey does not address gating the images in a manner that avoids the pacemaker induced spike.

Applicant submits that Richey, either alone or in combination with Daum, fails to teach or suggest each and every element of the instant invention in such a manner as to perform as the claimed invention performs. Accordingly, Applicant respectfully submits that a prima facie case of obvious has not been established. Reconsideration and withdrawal of this rejection is respectfully requested.

With respect to independent Claim 10, Applicant submits that independent Claim 10 includes further limitations not found in the prior art. For example, Claim 10 includes the limitation that the trigger point is associated with local maxima or minima and a zero time differential is calculated for correcting the trigger gating. In contrast, Applicant finds that Richey discloses a system that uses the R-wave signal with a delay parameter to trigger the imaging. [Richey, Col 3, Lines 66-68, Col 4, Lines 1-5]. Due to irregularities in the cardiac cycle, Applicant further finds that Richey places tolerances on the correspondence of the trigger to the actual cardiac rhythm. If the cardiac rhythm is outside of the tolerance band, the image is discarded as discussed above. [Richey, Col 4, Lines 50-54]. Accordingly, Applicant respectfully submits that the system disclosed by Richey does not include the advantage of correcting the trigger to be synchronized with the local maxima or minima for the improvement in image quality. [present application, Paragraph [0022]. Therefore, Applicant submits that Richey, either alone or in combination, does not disclose, teach or suggest the claimed limitations of the calculating of a trigger based on a local maxima or minima, or the calculating of a zero time differential for correcting the trigger. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

With respect to independent Claim 20, as amended, includes the same limitations for the correcting of the trigger to the local maxima or minima as independent Claim 10. Accordingly, Applicant respectfully submits that Claim 20 is not obvious in view of Richey, either alone or in combination with Daum, for at least the same reasons as discussed above with respect to independent Claim 10. Reconsideration and withdrawal of this rejection is respectfully requested.

With respect to dependent Claims 3-9, 11-15 and 21, which depend directly or indirectly from independent Claims 1, 10 and 20, also incorporate all of the limitations of the parent claims. Accordingly, Applicant respectfully submits that Claims 3-9, 11-15 and 21 are not obvious in view of Richey, either alone or in combination with Daum, for at least the same reasons as discussed above with respect to independent Claims 1, 10 and 20. Reconsideration and withdrawal of this rejection is respectfully requested.

In addition to the foregoing, Applicant finds no motivation or teaching in Richey to modify Daum to arrive at the claimed arrangement of elements without disturbing the acquisition of images and intended purpose of the art being modified.

In view of the foregoing, Applicant submits that the Daum and Richey fail to teach or suggest each and every element of the claimed invention and are therefore wholly inadequate in their teaching of the claimed invention as a whole, fail to motivate one skilled in the art to do what the patent Applicant has done, fail to recognize a problem recognized and solved only by the present invention, fail to offer any reasonable expectation of success in combining Daum and Richey to perform as the claimed invention performs, fail to teach a modification to prior art that does not render the prior art being modified unsatisfactory for its intended purpose, and discloses a substantially different invention from the claimed invention, and therefore cannot properly be used to establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a), which Applicant considers to be traversed.

In light of the foregoing remarks and amendments, Applicant respectfully submits that the finality of the office action is premature and should be withdrawn. Notwithstanding Applicants comments regarding the premature finality of the office action, Applicant further submits that the proposed amendments and arguments comply with 37 C.F.R. §1.116 and should therefore be entered, and with their entry that the

Examiner's rejections under 35 U.S.C. §103(a) have been traversed, and that the application is now in condition for allowance. Such action is therefore respectfully requested.

If a communication with Applicant's Attorneys would assist in advancing this case to allowance, the Examiner is cordially invited to contact the undersigned so that any such issues may be promptly resolved.

The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 07-0845.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-identified Deposit Account.

Respectfully submitted,

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